

NASA Glenn Plum Brook Station

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Decommissioning Success Stories

This is one in a series of fact sheets prepared by NASA Glenn Research Center to provide the public with information on decommissioning the closed Reactor Facility at Plum Brook Station. This fact sheet briefly describes several successful decommissioning projects from across the country to help familiarize people with how decommissioning is done - safely and successfully. These other projects were also conducted under the review of the Nuclear Regulatory Commission (NRC).

In December 1999, NASA submitted a Decommissioning Plan for the closed Reactor Facility to the NRC. The NRC is currently reviewing the Plan and NASA anticipates approval in mid-2001. NASA also anticipates starting actual decommissioning work in the Fall of 2001, with completion by 2007.

NASA is fully responsible for all aspects of the decommissioning project. NASA is also working with the Army Corps of Engineers, who will supervise the physical decommissioning, or deconstruction, activities. NASA has chosen the safest and most thorough alternative for decommissioning the closed Reactor Facility, so the site may be used for any purpose (unrestricted use).

Over the last 40 years, more than 70 test, demonstration and power reactors have been safely and successfully decommissioned throughout the United States - facilities that were both larger and smaller than the reactor that operated at Plum Brook Station. Here is a look at three such decommissioning projects; one is complete and two are nearing completion.

Saxton Nuclear Experimental Corporation (SNEC)

GPU Nuclear, Inc. (GPUN), which owned commercial nuclear power plants across the country, operated a research reactor in the town of Saxton, PA, from 1962 until 1972. Saxton, located in Bedford County (between Pittsburgh and Harrisburg) - with a population of less than 1,000 - was home to the Saxton Nuclear Experimental Corporation (SNEC), which ran a 23.5-megawatt (thermal) reactor. The facility produced more than 96,000 megawatts of electricity and was used for research by GPU, Inc., Westinghouse, Rutgers University and Penn State University. The experimental facility was originally intended to operate for about eight years. In 1972, GPUN safely closed the reactor, removing its nuclear fuel to an Atomic Energy Commission facility in Savannah River, SC.



Large SNEC reactor components are transported by flatbed truck on a 27 mile trip to a rail siding in Huntingdon, PA.

Two years later, the facility was placed in the safe storage mode until 1986 when GPUN began the decommissioning process at the facility. Decommissioning of the reactor facility is expected to be complete by mid-2001, at a cost estimated at \$40 million.

GPUN recognized the importance of community outreach early in the decommissioning process. In the fall of 1995, the company established an on-site public affairs office to work with officials in Bedford County, formed a Citizens Task Force and conducted educational outreach to local schools. GPUN also contracted with Penn State to provide an independent inspector for the SNEC decommissioning project. The independent inspector - a certified health physicist - conducts random inspections of the site, serves the community as a independent source of technical information, trains Task Force members in radiation monitoring, and is available to answer questions on an 800 number.

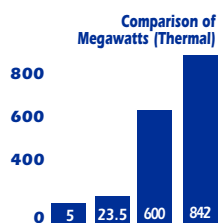
Other GPUN community outreach efforts have included: providing ongoing monitoring information to the community; conducting a contest among sixth graders to design a logo for the decommissioning project; providing advance notice to the community on all waste shipments through town; and establishing a telephone notification system to keep community members updated on the progress of the decommissioning.

GPUN's excellent relationship with the community was evident on November 3, 1998, when workers transported three large reactor components - the reactor vessel, steam generator and pressurizer - on flatbed trucks over a 27-mile route to a rail siding in Huntingdon, PA. The components were subsequently sent by rail to Barnwell, SC for disposal. Students from nearby schools, many of whose parents were local students when the reactor facility was built, were given time off from school and lined the truck route through the town.

Earlier this year, GPUN submitted a License Termination Plan to the NRC. GPUN is hopeful that the NRC will complete its review of the plan by the end of 2000. Meanwhile, remediation and restoration operations safely continue, with an expected successful completion by mid-2001. Once the NRC determines that the Saxton site meets the release criteria, the SNEC license will be terminated. ■

Projects Large and Small

Decommissioning projects, both larger and smaller than the closed Reactor Facility at Plum Brook Station, have been undertaken safely and successfully. Two of the three reactors discussed in this fact sheet - SNEC (23.5 megawatts thermal) in Pennsylvania and the Watertown Arsenal (5 megawatts thermal) in Massachusetts - had capacities smaller than Plum Brook Station's 60 megawatts (thermal). The facilities at Watertown and Plum Brook Station were nonpower reactors. Compare their capacities with the former Yankee Rowe power reactor (600 megawatts thermal) in Massachusetts and the decommissioned Fort St. Vrain (842 megawatts thermal) facility in Colorado.



Watertown Arsenal Test Reactor

Working with the Community

At Plum Brook Station, a 14-member Community Workgroup provides NASA with a vehicle for disseminating information on the decommissioning process, while giving the community the opportunity to raise questions and concerns - and provide input into the project. The Workgroup consists of all local area residents, including health and public safety professionals, as well as members of Erie County's educational, environmental and minority communities. Its quarterly meetings include presentations by NASA officials, are advertised in local newspapers, and are open to the public.

Located just outside Boston, MA, the Watertown Arsenal played an important role in the defense of this nation for more than 180 years. Established in 1816 by President James Madison, the Arsenal tested, manufactured and stored weapons for the US Army. From 1960 to 1970, the Arsenal's on-site Materials Technology Laboratory (MTL) operated the Army's first test reactor for researching the molecular and atomic structures of materials.



Watertown Arsenal reactor facility just prior to start of decommissioning work.

The MTL reactor operated at a 1-megawatt (thermal) level until 1966, increasing to 2 megawatts (thermal) through 1969, and at a 5-megawatt (thermal) level for a brief period. The Army suspended the reactor's operations and safely removed its nuclear fuel in March 1970. The reactor was then placed on standby status until 1992.

As a result of the Defense Authorization Amendments and Base Closure and Realignment Act of 1988, the Arsenal was scheduled for closure in 1995. Based on the announced schedule, the Army decided to decommission the reactor. The Army filed a Decommissioning Plan with the NRC in October 1991 and received NRC approval in June 1992.

Under the supervision of the Army Corps of Engineers, the \$18 million decommissioning project began in June 1992 and was successfully completed in six months. The NRC subsequently performed an independent review and surveys, leading to license termination by the NRC in October 1993. Prior to the eventual closing of the Watertown Arsenal, the Army Corps of Engineers also conducted an extensive environmental cleanup, unrelated to the closed reactor facility.

The Army also engaged in considerable community outreach activities, setting up an Information Repository at the Watertown Free Library and developing relationships with community organizations, including the Watertown Arsenal Reuse Committee. Now that the decommissioning of the reactor is complete, and the Watertown Arsenal cleanup nearly complete, the site is being redeveloped for office and retail use. ■

Yankee Rowe Nuclear Power Station

Located in the western Massachusetts town of Rowe, the Yankee Rowe Nuclear Power Station supplied electricity to thousands of New England homes and businesses for more than 30 years. Yankee Rowe, a 600-megawatt (thermal) pressurized water reactor, was the first commercial reactor built in New England and only the third in the United States. The plant went on line in 1961 and continued in service until its shutdown in October 1991.

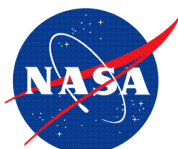


Decommissioning work takes place inside the Yankee Rowe reactor facility.

With the plant's 40-year operating license due to expire in 2000, Yankee Atomic Electric Company submitted a Decommissioning Plan to the NRC and began decommissioning in 1993. That year, four steam generators were removed and shipped on an 1100-mile truck and rail journey to Barnwell, SC for disposal. The 165-ton reactor vessel, which once held the reactor's nuclear fuel, was removed from containment in November 1996. The spaces between the Yankee vessel and the 90-ton shipping container, on which it was placed, were then filled with concrete (80 tons worth) and the container lid permanently welded into place. The vessel - the last large component to be removed and shipped for disposal - was stored at Yankee Rowe until April 1997, when it was safely transported to Barnwell.

Unlike the nonpower reactor that operated at Plum Brook Station, the used fuel at Yankee Rowe continues to be stored on site; in a series of assemblies maintained in a water-filled pool that protects the fuel from affecting the environment. In 2001, the fuel will be prepared for shipping in a series of airtight, stainless steel canisters. Yankee Rowe is waiting for the US Department of Energy to remove the fuel.

Work on the Yankee Rowe decommissioning is largely complete. The remaining decommissioning work includes dismantling several on-site buildings and site restoration activities. Yankee Rowe is working with a Community Advisory Board. This group meets regularly throughout the year and includes representation by officials in nine area cities and towns, as well as county officials and local organizations. ■



For more information contact

Sally V. Harrington 216-433-2037

NASA Glenn Research Center
Community and Media Relations Office

21000 Brookpark Road
Mail Stop 3-11
Cleveland, Ohio 44135